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A 31-year-old brown meagre female poached in the Scandola marine reserve in Corsica, France

by

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Résumé. – Une femelle corb de 31 ans braconnée dans la réserve marine de Scandola (Corse, France).

Le corb, *Sciaena umbra*, est une espèce longévive à croissance lente très convoitée par les chasseurs sous-marins. Cette pression de chasse a contribué à la diminution des effectifs et à une raréfaction des individus de grande taille hors des réserves marines. En 2014, en réponse à ce déclin, un moratoire de cinq ans a été mis en place pour protéger cette espèce sur les côtes françaises. Dans cette étude, l'âge d'une grande femelle braconnée dans la réserve marine de Scandola a été estimé à 31 ans, ce qui est l'âge le plus élevé trouvé à ce jour dans la bibliographie pour cette espèce.

Key words. – Sciaenidae - *Sciaena umbra* - Corsica - Scandola - Otolith - Ageing.

Sciaenidae are represented by three genera in the Mediterranean Sea (*Argyrosomus*, *Sciaena* and *Umbrina*). The brown meagre, *Sciaena umbra* Linnaeus, 1758, is a long-lived species, distributed in the Eastern Atlantic from Mauritania to the English Channel, and in the Mediterranean and Black Seas (Chao and Trewavas, 1990). This slow-growing species is gonochoristic and the age at first spawning occurs at 3–4 years old (about 25 cm for males and 30 cm for females) during summer, and possibly within spawning aggregations. Although Dieuzeide *et al.* (1955) reported large individuals along the Algerian coast in 1955, individuals larger than 60 cm are currently very rare except in marine protected areas (Harmelin, 2013; Harmelin-Vivien *et al.*, 2015). The brown meagre is a highly sought after species for spearfishers because of its beauty, calm swimming, aggregative behaviour, accessibility, taste and large otoliths collected for souvenirs (Harmelin, 1991). These biological and behavioural characteristics have together contributed to a decrease in abundance of the brown meagre, which has led to its inclusion within Annexe III (Protected Fauna Species) of the Barcelona and Bern Conventions, and classification as a near threatened species by the IUCN (Chao, 2015). In 2014, a five-year ban was placed on spearfishing and recreational fishing of the brown meagre along the continental French coasts and in Corsica (Prefectoral order N° 2013357-0002 and N° 2013357-0007). As data on large individuals are limited, large female brown meagre have recently been studied through data acquired after a poacher was arrested in the no-take zone of the Scandola Marine Reserve in Corsica (France).

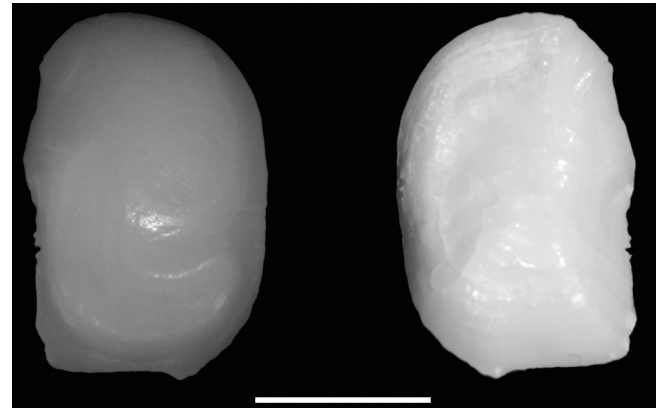


Figure 1. – Photograph of the proximal (left) and distal (right) sides of the brown meagre sagittae (LT = 497 mm). Scale bar = 1 cm.

The capture of the poacher and its illegal catch provided an opportunity to estimate the age for a large individual presumed to be old.

Otoliths are calcium carbonate structures within the inner ear of the teleost that contribute to equilibrium and auditory mechanisms (Popper and Combs, 1980). Otolith characteristics are species-specific and these structures present both daily and annual increments used in many studies for age and growth estimations (Panfili *et al.*, 2002). The brown meagre has large saccular otoliths, or sagittae (Fig. 1), but to date, age-related data for this species has been relatively scarce (Chauvet, 1991; Ragonese *et al.*, 2004; La Mesa *et al.*, 2008).

RESULTS AND DISCUSSION

The brown meagre female measured 497 mm (total length) and weighed 3430 g. This size is close to the asymptotic length (L_{∞}) reported for *Sciaena umbra* females in different countries: 472 mm in the Adriatic Sea (La Mesa *et al.*, 2008), 476 mm on the Maltese coast (Ragonese *et al.*, 2004), and 537 and 539 mm along Tunisian coasts (Chauvet, 1991; Chakroun-Marzouk and Ktari, 2003). Right and left otoliths (sagittae, Fig. 1) were similar (length 20.1 and 20.4 mm; width: 13.9 and 14.0 mm; mass: 2.384 and 2.229 g, respectively). They were longer and heavier than those analyzed by

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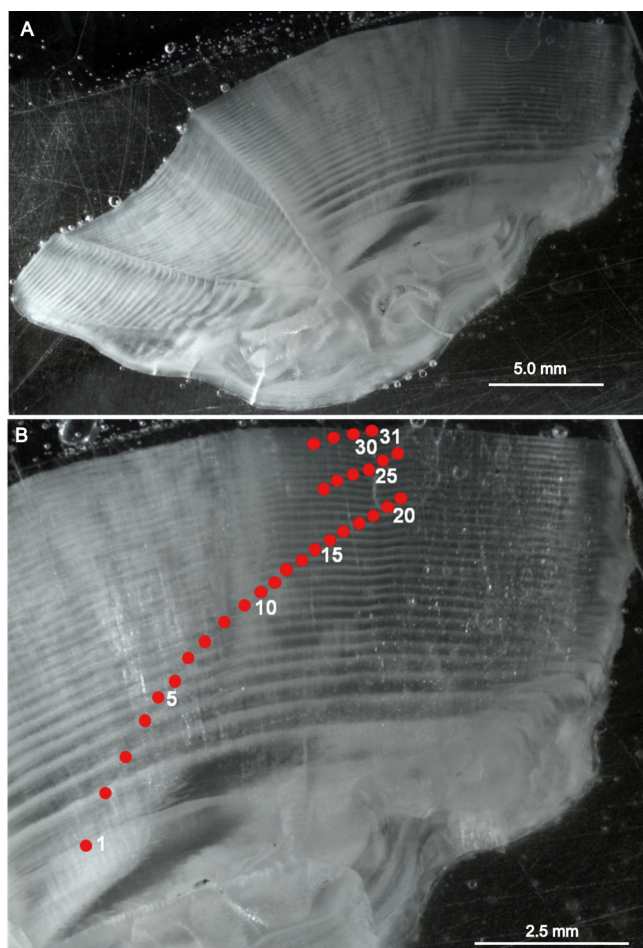


Figure 2. – A: Transverse section of the brown meagre otolith. B: Focus on annual marks (red points).

La Mesa *et al.* (2008). The age of this female was estimated at 31 years old by counting the annual increments from the nucleus to the edge on a transverse otolith thin section (Fig. 2A, B). This individual is the oldest female brown meagre currently reported in the literature: 16 years by La Mesa *et al.* (2008), 21 years by Chauvet (1991) and 26 years by Ragonese *et al.* (2004).

These results suggest that old large females, which produce more eggs and healthier larvae than younger, smaller individuals (Rijnsdorp *et al.*, 1991) and which are now present only in marine protected areas (Harmelin-Vivien *et al.*, 2015), have the potential to provide a long-term supply of juveniles, both inside and outside a protected area. As such, this study provides further evidence for the importance of marine protected areas for the persistence of healthy fish populations.

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